Abstract

~~The present invention concerns the mining and mineral treatment industry. Specifically, it relates to a solution composition that permits the use of thiourea. Specifically, the patent refers to a process to form a solution that improves, on one hand, the velocity of gold and silver extraction, from minerals and other materials that contain them, improving the stability of the thiourea in the leaching solution and, on the other, the direct electrorecovery of said metals from the aforementioned solution. The invention consists of the leaching solution that, beforehand or simultaneously, has been subjected to a controlled electro-oxidation to produce formamidine disulfide (FADS) which acts as an oxidizing agent for the mineral phases that contain the gold and silver. In the preferred mode, the FADS is present as 10 to 30% of the total thiourea contained in the solution and the electrodeposition of the metals is performed in the same cell (cathodic compartment) in which the FADS is formed (anodic compartment).~~

A solution composition that permits the use of thiourea is provided. The process is to form a solution that improves, on one hand, the velocity of gold and silver extraction, from minerals and other materials that contain them, improving the stability of the thiourea in the leaching solution and, on the other, the direct electrorecovery of the metals from the solution. The leaching solution, beforehand or simultaneously, has been subjected to a controlled electro-oxidation to produce formamidine disulfide (FADS) which acts as an oxidizing agent for the mineral phases that contain the gold and silver. In a preferred mode, the FADS is present as 10 to 30% of the total thiourea contained in the solution and the electrodeposition of the metals is performed in the same cell (cathodic compartment) in which the FADS is formed (anodic compartment).